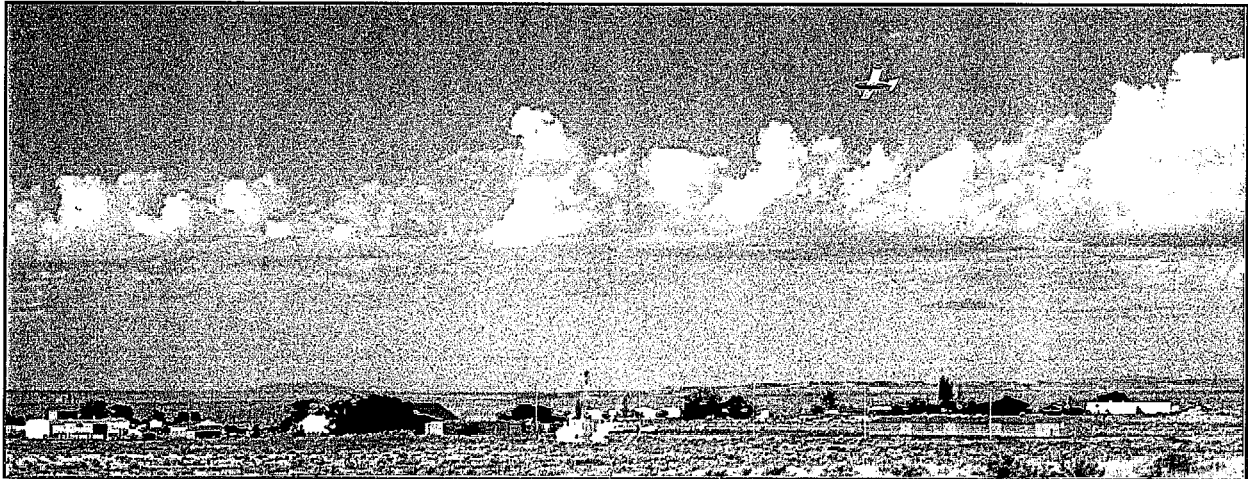




CHAPTER TWO FORECASTS

Chapter Two

AVIATION DEMAND FORECASTS



Facility planning must begin with a definition of the demand that may reasonably be expected to occur at the facility over a specific period time. For Holbrook Municipal Airport, this involves forecasts of aviation activity indicators through the year 2020. In this master plan, forecasts of based aircraft, based aircraft fleet mix, and annual aircraft operations will serve as the basis for facility planning.

It is virtually impossible to predict with certainty year-to-year fluctuations of activity when looking twenty years into the future. Because aviation activity can be affected by many influences at the local, regional, and national level, it is important to remember that forecasts are to serve only as guidelines and planning must remain flexible enough to respond to unforeseen facility needs.

The following forecast analysis examines recent developments, historical information, and current aviation trends to provide an updated set of aviation demand projections for Holbrook Municipal Airport. The intent is to permit the City of Holbrook to make planning adjustments necessary to ensure that the facility meets projected demands in an efficient and cost-effective manner.

NATIONAL AVIATION TRENDS

Each year, the Federal Aviation Administration (FAA) publishes its national aviation forecast. Included in this publication are forecasts for air carriers, regional air carriers, general

aviation, and military activity. The forecasts are prepared to meet budget and planning needs of the constituent units of the FAA and to provide information that can be used by state and local authorities, the aviation industry, and the general public. The current edition when this chapter was prepared was *FAA Aviation Forecasts-Fiscal Years 1998-2009*. The forecast uses the economic performance of the United States as an indicator of future aviation industry growth. Similar economic analyses are applied to the outlook for aviation growth in international markets.

For the U.S. aviation industry, the outlook for the next twelve years is for moderate economic growth, low to moderate inflation, and constant real fuel prices. Based on these assumptions, aviation activity by fiscal year 2009 is forecast to increase by 18.9 percent at combined FAA and contract towered airports and 24.6 percent at air route traffic control centers. The general aviation active fleet is projected to increase by 12.5 percent while general aviation hours flown are forecast to increase by 18.1 percent.

GENERAL AVIATION

By most statistical measures, general aviation recorded its third consecutive year of growth. Following more than a decade of decline, the general aviation industry was revitalized with the passage of the General Aviation Revitalization Act of 1994 (federal legislation which limits the liability on general aviation aircraft to 18 years from the date of manufacture). This

legislation sparked an interest to renew the manufacturing of general aviation aircraft due to the reduction in product liability and a renewed optimism for the industry. The high cost of product liability insurance was a major factor in the decisions by many American aircraft manufacturers to slow or discontinue the production of general aviation aircraft.

According to the General Aviation Manufacturers Association (GAMA), aircraft shipments and billings grew for the third consecutive year in 1997, following fourteen years of annual declines. In 1997, general aviation aircraft manufacturers shipped a total of 1,569 aircraft totaling \$4.7 billion. For 1997, aircraft shipments were up 28.8 percent and billings up 49.5 percent more than 1996. In 1996, general aviation aircraft manufacturers shipped a total of 1,130 aircraft totaling \$3.1 billion.

For 1997, piston engine aircraft shipments were up 64.2 percent and turbine aircraft shipments up 10.2 percent. Single-engine piston aircraft recorded the single largest gain, growing 70.8 percent in 1997 while turboprop aircraft shipments increased 44.4 percent. Multi-engine piston aircraft shipments grew 14.3 percent. Only turboprop aircraft registered a decline in shipments in 1997 (18.3 percent).

Despite a small decline in the number of active pilots, student pilot starts were up 1.3 percent in 1997, following a 6.3 percent decline in 1996. These student pilots are the future of general aviation and are one of the key factors impacting

the future direction of the general aviation industry. This increase combined with the increase in piston-powered aircraft shipments and aircraft production is a signal that many of the industries initiated programs to revitalize general aviation maybe taking hold.

The most notable trend in general aviation is the continued strong use of general aviation aircraft for business and corporate uses. According to the FAA, general aviation operations and general aviation aircraft handled at enroute traffic control centers increased for the sixth consecutive year, signifying the continued growth in the use of the more sophisticated general aviation aircraft. In 1996 (the latest year of recorded data), the number of hours flown by the combined use categories of business and corporate flying represented 22.5 percent of total general aviation activity. In 1990, the number of hours flown by the combined use categories of business and corporate flying represented 21.8 percent of total general aviation activity.

Manufacturer and industry programs and initiatives continue to revitalize the general aviation industry. The newest program "GA Team 2000" has the goal of 100,000 annual student pilot starts by the year 2000. The New Piper Aircraft company has created Piper Financial Services (PFS) to offer competitive interest rates and/or leasing of Piper aircraft.

The most striking industry trend is the continued growth in fractional owner-

ship programs. Fractional ownership programs allow businesses and individuals to purchase an interest in an aircraft and pay for only the time that they use the aircraft. This has allowed many businesses and individuals, who might not otherwise, to own and use general aviation aircraft for business and corporate uses. Aircraft manufacturers' Raytheon, Bombardier, and Dassault Falcon Jets have all established fractional ownership programs. Industry leader Executive Jet Aviation has expanded their program to include Boeing Business Jets and Gulfstream aircraft.

Exhibit 2A depicts the FAA forecast for active general aircraft in the United States. The FAA forecasts active general aviation aircraft to increase at an average annual rate of 1.0 percent over the next 12 years, increasing from 187,312 in 1996 to 212,960 in 2009. Over the forecast period, the active fleet is expected to increase by almost 2,000 annually (considering retirements of older piston aircraft and new aircraft production at 4,000 annually). Turbine-powered aircraft are projected to grow faster than all other segments of the national fleet and grow 2.2 percent annually through the year 2008. This includes the number of turboprop aircraft growing from 5,309 in 1996 to 6,482 in 2009 and the number of turbojet aircraft increasing 4,287 in 1996 to 6,228 in 2009. Amateur built aircraft are projected to increase at an average annual rate of 1.1 percent over the next twelve years, increasing from 16,198 in 1996 to 18,622 in 2008.

POPULATION PROJECTIONS

Population growth provides an indication of the potential for sustaining growth in aviation activity over the planning period. Historical and forecast population for the City of Holbrook and Navajo County are summarized in **Table 2A**. As discussed previously, the City of Holbrook population grew by more than 1,000 between 1970 and 1980. After declining by nearly 1,100 between 1980 and 1990, the City of Holbrook population rebounded, growing at an average annual rate of

2.6 percent since 1990. The City of Holbrook's population growth is projected to grow at an average annual rate of 0.5 percent through the year 2020 when the population is expected to reach 6,354.

Between 1970 and 1997, the population for Navajo County increased by more than 36,741 and averaged an annual growth rate of 2.1 percent. The population for the county is expected to reach 111,950 by the year 2020 (an average annual growth rate of 1.1 percent).

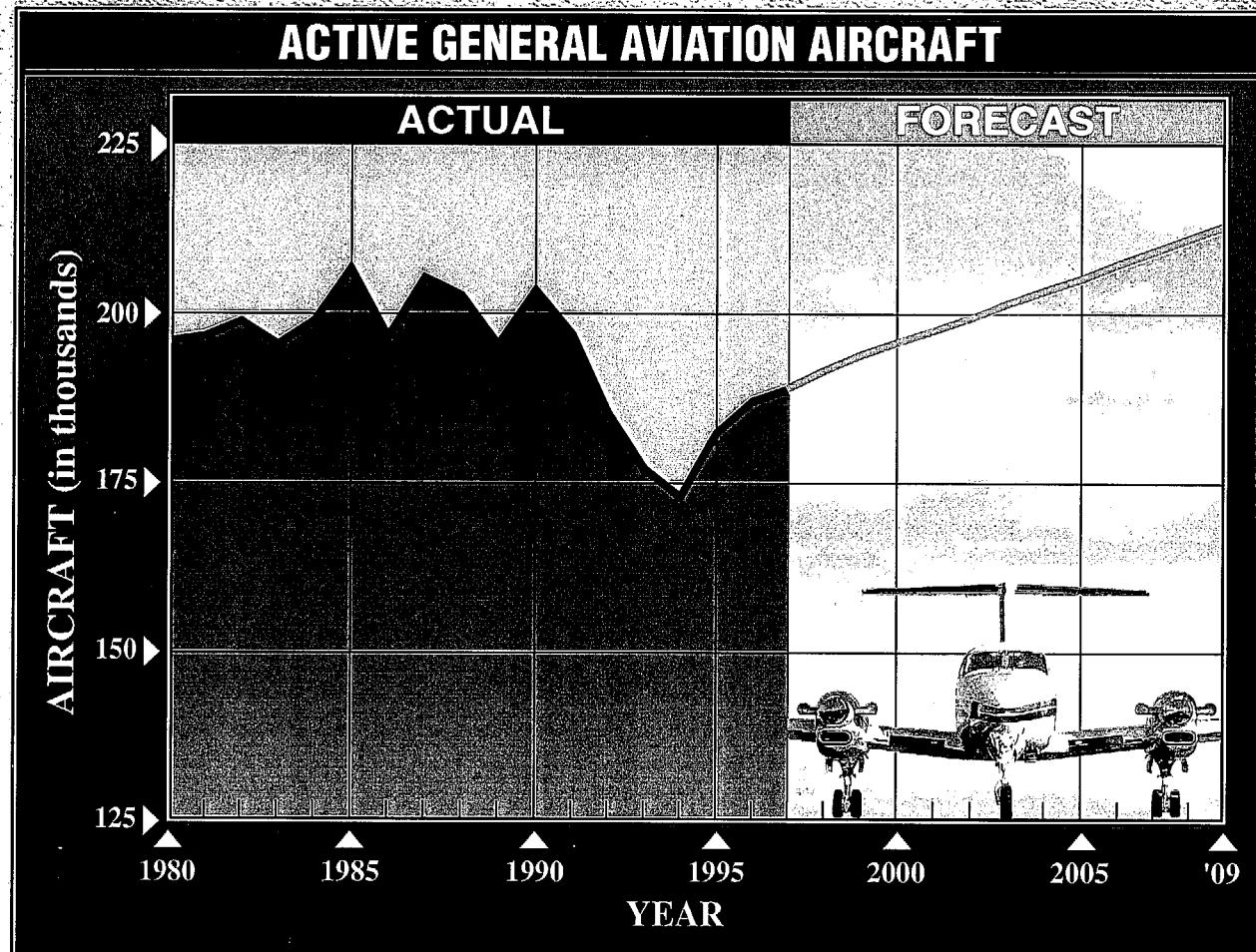
TABLE 2A Historical and Forecast Population		
Year	City of Holbrook	Navajo County
<i>Historical</i>		
1970	4,759	47,559
1980	5,785	67,629
1990	4,686	77,674
1997	5,625	84,300
<i>Forecast</i>		
2005	5,895	94,400
2010	6,066	99,975
2015	6,194	105,850
2020	6,354	111,950
Source: Arizona Department of Economic Security, Population Statistics Unit/Arizona State Data Center.		

FORECASTING APPROACH

The development of aviation forecasts proceeds through both analytical and judgmental processes. A series of mathematical relationships is tested to establish statistical logic and rationale for projected growth. However, the judgement of the forecast analyst, based

upon professional experience, knowledge of the aviation industry, and their assessment of the local situation, is important in the final determination of the preferred forecast.

It is important to note that one should not assume a high level of confidence in forecasts that extend beyond five years.



U.S. ACTIVE GENERAL AVIATION AIRCRAFT (in thousands)

As of January 1	FIXED WING								
	PISTON		TURBINE		ROTORCRAFT				
	Single Engine	Multi- Engine	Turboprop	Turbojet	Piston	Turbine			
1997	136.7	15.8	5.3	4.4	2.4	4.0	16.4	4.2	189.3
2000	141.2	16.0	5.5	4.9	2.3	4.2	17.1	4.3	195.6
2003	145.3	16.2	5.8	5.4	2.2	4.4	17.7	4.4	201.4
2006	149.5	16.5	6.1	5.8	2.2	4.5	18.1	4.5	207.2
2009	153.7	16.6	6.5	6.2	2.1	4.6	18.6	4.6	212.9

Source: FAA Aviation Forecasts, Fiscal Years 1998-2009.

Notes: Detail may not add to total because of independent rounding. An active aircraft must have a current registration and it must have been flown at least one hour during the previous calendar year.



MUNICIPAL AIRPORT

Exhibit 2A
U.S. ACTIVE GENERAL AVIATION
AIRCRAFT FORECASTS

Facility and financial planning usually require at least a ten-year preview, since it often takes more than five years to complete a major facility development program. However, it is important to use forecasts which do not overestimate revenue-generating capabilities or understate demand for facilities needed to meet public (user) needs.

A wide range of factors is known to influence the aviation industry and can have significant impacts on the extent and nature of air service provided in both the local and national market. Technological advances in aviation have historically altered, and will continue to change, the growth rates in aviation demand over time. The most obvious example is the impact of jet aircraft on the aviation industry, which resulted in a growth rate that far exceeded expectations. Such changes are difficult, if not impossible to predict, and there is simply no mathematical way to estimate their impacts. Using a broad spectrum of local, regional and national socioeconomic and aviation information, and analyzing the most current aviation trends, forecasts are presented in the following sections.

AVIATION ACTIVITY FORECASTS

To determine the types and size of facilities that should be planned to accommodate general aviation activity, certain elements of the activity must be forecasted. Indicators of general aviation demand include: based aircraft, the based aircraft fleet mix, annual

operations, and peak activity. The remainder of this chapter will examine historical trends with regard to these areas of general aviation activity at the airport.

BASED AIRCRAFT PROJECTIONS

The number of based aircraft is the most basic indicator of general aviation demand at an airport. By first developing a forecast of based aircraft, the growth of aviation activities at the airport can be projected.

Table 2B summarizes historical based aircraft at Holbrook Municipal Airport and historical registered aircraft in Navajo County. As evidenced in the table, based aircraft at Holbrook Municipal Airport have declined annually since 1995, after increasing over the previous year. Comparatively, total registered aircraft in Navajo County have increased over the same period, fluctuating between a low of 68 in 1994 and a high of 77 aircraft in 1995.

Forecasts of based aircraft at Holbrook Municipal Airport have been prepared by examining the airport's share of Navajo County registered aircraft and examining the ratio of based aircraft to total population in the City of Holbrook. As shown in **Table 2B**, the percentage of registered aircraft in Navajo County based at Holbrook Municipal Airport has declined since 1995, mirroring the trend of based aircraft at the airport. Two market share forecasts have been prepared and are summarized in **Table 2B**.

TABLE 2B**Historical and Forecast based Aircraft and Navajo County Registered Aircraft**

Year	Navajo County Registered Aircraft ¹	Holbrook Municipal Airport Based Aircraft ²	Percent of Navajo County Registered Aircraft Based At Holbrook
HISTORICAL			
1994	68	19	27.9
1995	77	22	28.5
1996	73	17	23.2
1997	69	15	21.7
1998	74	14	18.9
FORECASTS			
Constant Market Share			
2005	81	15	19.0
2010	86	16	19.0
2015	92	17	19.0
2020	99	18	19.0
Increasing Market Share			
2005	81	18	22.0
2010	86	21	24.0
2015	92	25	27.0
2020	99	29	29.0
¹ Source for Historical and Forecast Data: ADOT; 2020 Extrapolated by Coffman Associates.			
² ADOT (1994-1997), Airport Records (1998), Forecasts by Coffman Associates.			

Assuming that the airport's share of Navajo County registered aircraft remains static, or near the 1998 level of 18.9 percent, yields 18 based aircraft by the end of the planning period. Considering forecast local and regional population growth and present economic growth trends, it is likely that the airport's share of Navajo County registered aircraft could increase through the planning period. An increasing market share of Navajo County registered aircraft yields 29 based aircraft by the end of the planning period.

A second forecasting technique examined historical based aircraft totals to 1,000 residents in the City of Holbrook. As evidenced in **Table 2C**, the ratio of aircraft to residents has declined since 1998 as based aircraft totals have declined. A forecast of based aircraft has been prepared assuming that the ratio of based aircraft to 1,000 residents increases gradually through the planning period, consistent with forecast population growth. An increasing ratio of based aircraft (growing to the 1995 level by 2015) yields 32 based aircraft by the end of the planning period.

TABLE 2C Aircraft Per 1,000 Residents			
Year	Based Aircraft	Holbrook Residents	Aircraft per 1,000 Residents
1994	19	4,880	3.89
1995	22	5,070	4.33
1996	17	5,385	3.15
1997	15	5,625	2.66
Forecasts			
2005	19	5,895	3.2
2010	23	6,066	3.8
2015	27	6,194	4.4
2020	32	6,354	5.0

Presented in **Table 2D** and on **Exhibit 2B** is a summary of all forecasts for based aircraft at Holbrook Municipal Airport and the selected planning forecast. Forecast local population growth and present economic trends increase the potential for based aircraft growth at the airport. The selected planning forecast reflects the airport increasing its share of regional registered aircraft through the planning period. The selected planning forecast projects based aircraft growing at an average annual rate of 3.5 percent through the planning period.

Other resources used for comparative purposes include the 1996 *FAA Terminal Area Forecasts (TAF)*, 1995 *Arizona State Aviation Needs Study (SANS)*, and the 1989 *Holbrook Municipal Airport Master Plan*. The 1997 TAF used 1996 base year data and projected based aircraft levels remaining static through the planning period. The 1995 SANS used 1993 base year data and projected based aircraft growing an average annual rate of 0.4 percent through 2015. The 1989 Master Plan projected based aircraft growing at

an average annual rate of 1.9 percent through 2010.

In all likelihood, actual activity will not follow any one of the projections exactly. It is more likely that based aircraft levels will fluctuate within the range of projections presented on **Exhibit 2B**. Thus, these lines serve as a planning envelope. The planning envelope reflects a reasonable range within which actual based aircraft totals should be found. At any given time through the planning period, the actual level of based aircraft could fall within the low range (constant share of Navajo County registered aircraft) or high range (aircraft per 1,000 residents) of the planning envelope.

FLEET MIX PROJECTION

Knowing the aircraft fleet mix expected to utilize the airport is necessary to properly plan facilities that will best serve the level of activity and the type of activities occurring at the airport. The existing-based aircraft fleet mix is comprised entirely of single-engine piston aircraft.

TABLE 2D
Based Aircraft Forecast Summary

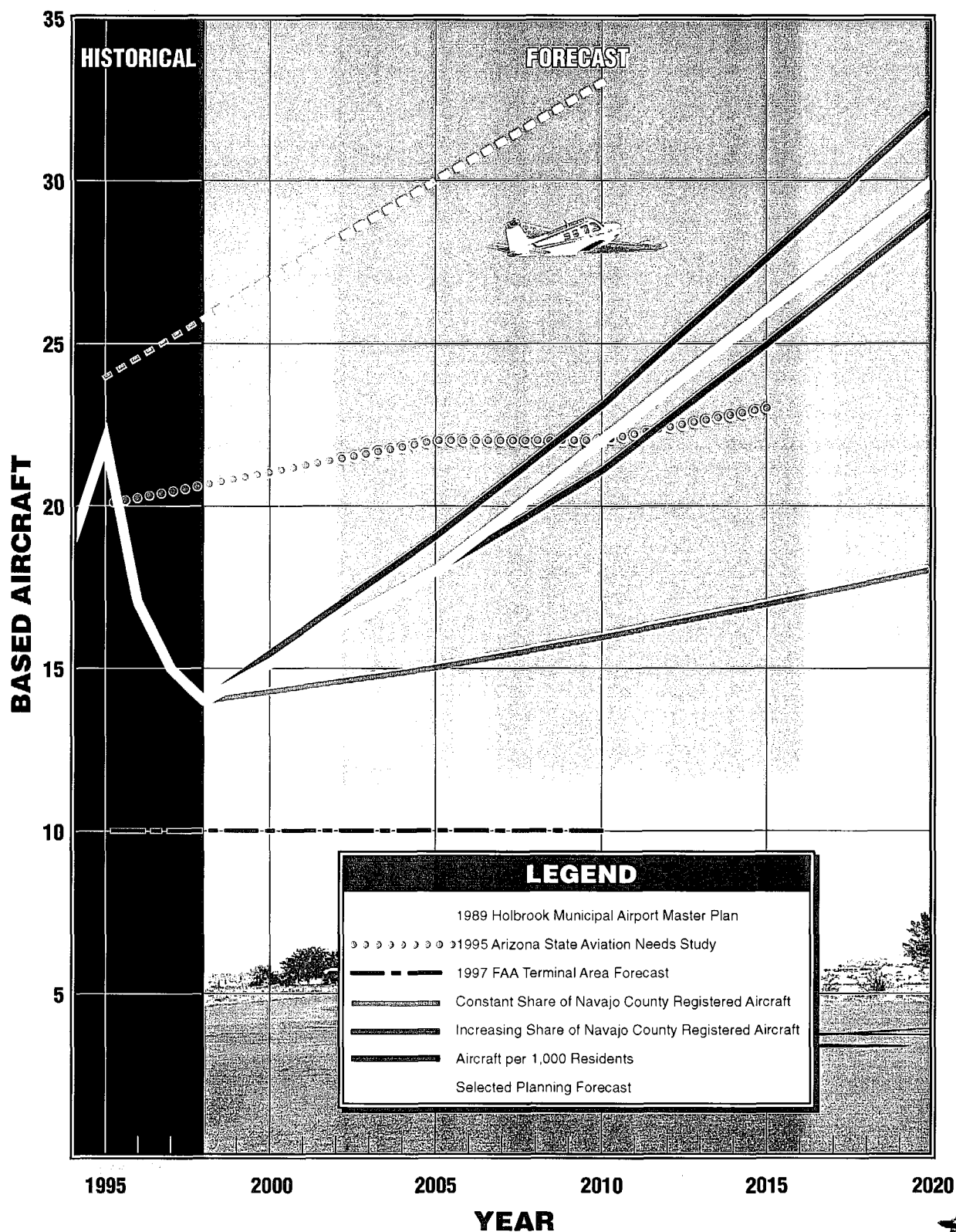
		Forecasts			
	1998	2005	2010	2015	2020
Share of Navajo County Registered Aircraft					
Constant Share		15	16	17	18
Increasing Share		17	21	25	29
Aircraft Per 1,000 Residents					
Holbrook Municipal Airport		19	23	27	32
Other Resources					
1997 FAA TAF		10	10	N/A	N/A
1989 Holbrook Municipal Airport Master Plan		30	33	N/A	N/A
1995 SANS		22	22	23	N/A
Selected Planning Forecast	14	18	22	26	30

As detailed previously, the national trend is toward a larger percentage of sophisticated turboprop, jet aircraft, and helicopters in the national fleet. Growth within each based aircraft category at the airport has been determined by comparison with national projections, which reflect current aircraft production. The projected trend of based aircraft at Holbrook Municipal Airport includes a

growing number of multi-engine, turboprop and jet aircraft through the planning period, while single-engine aircraft are expected to decline as a percentage of total based aircraft. Based helicopters are expected later in the planning period. The based aircraft fleet mix projection for Holbrook Municipal Airport is summarized in **Table 2E**.

TABLE 2E
Based Aircraft Fleet Mix Forecast

		Piston		Turbine		Helicopter
Year	Total	Single	Multi	Turboprop	Turbofan	
Historical						
1998	14	14	0	0	0	0
Forecasts						
2005	18	15	2	1	0	0
2010	22	17	3	1	1	0
2015	26	19	4	1	1	1
2020	30	21	5	2	1	1



ANNUAL OPERATIONS

There are two types of operations at an airport: local and itinerant. A local operation is a takeoff or landing performed by an aircraft that operates within site of the airport, or which executes simulated approaches or touch-and-go operations at the airport. Itinerant operations are those performed by aircraft with a specific origin or destination away from the airport. Generally, local operations are characterized by training operations. Typically, itinerant operations increase with business and commercial use since business aircraft are used primarily to carry people from one location to another.

Due to the absence of an airport traffic control tower, actual operational counts are not available for Holbrook Municipal Airport. Instead, only general estimates of aircraft operations based on observations are made periodically.

As mentioned previously in Chapter One, prior to 1994 annual operational estimates were reported to the FAA and recorded on the FAA 5010-1 Airport Master Record Form. A review of these forms indicates that operational estimates for Holbrook Municipal Airport have ranged from a high of 11,600 to a low of 4,600. Since 1994, Triple A Aviation has recorded operations at the airport during business hours. Those recorded operations are summarized in **Table 2F**. To provide a reasonable estimate of annual operations, these recorded level of operations have been increased by 15 percent to account for operations when

Triple A Aviation was closed and for unrecorded operations.

TABLE 2F
Historical Aircraft Operations

Year	Triple A Aviation Recorded Aircraft Operations	Adjusted Aircraft Operations
1994	3,770	4,100
1995	4,222	4,900
1996	4,518	5,200
1997	4,478	5,200

Projections of annual operations have been developed by examining the number of operations per based aircraft. Typically, operations per based aircraft can range between 200 and 800 at airports similar to Holbrook Municipal Airport. Airports with higher training operations (local operations) will have a higher operation per based aircraft ratio, whereas airports with a higher percentage of transient aircraft operations will have a lower ratio. At Holbrook Municipal Airport, transient operations represent a higher percentage of total annual operations than local operations. As shown in **Table 2G**, the number of operations per based aircraft has historically remained in the lower range of operations per based aircraft, increasing from 215 in 1994 to 346 in 1997.

Two forecasts of operations per based aircraft have been developed. First, a constant, or static level of 350 operations per based aircraft was applied to forecast based aircraft. This results in an operational level of 10,500 by 2020.

Next, an increasing number of operations per based aircraft was developed to account for the local trend of a growing number of operations per based aircraft. The FAA projects the number of hours flown by general aviation aircraft to increase at an

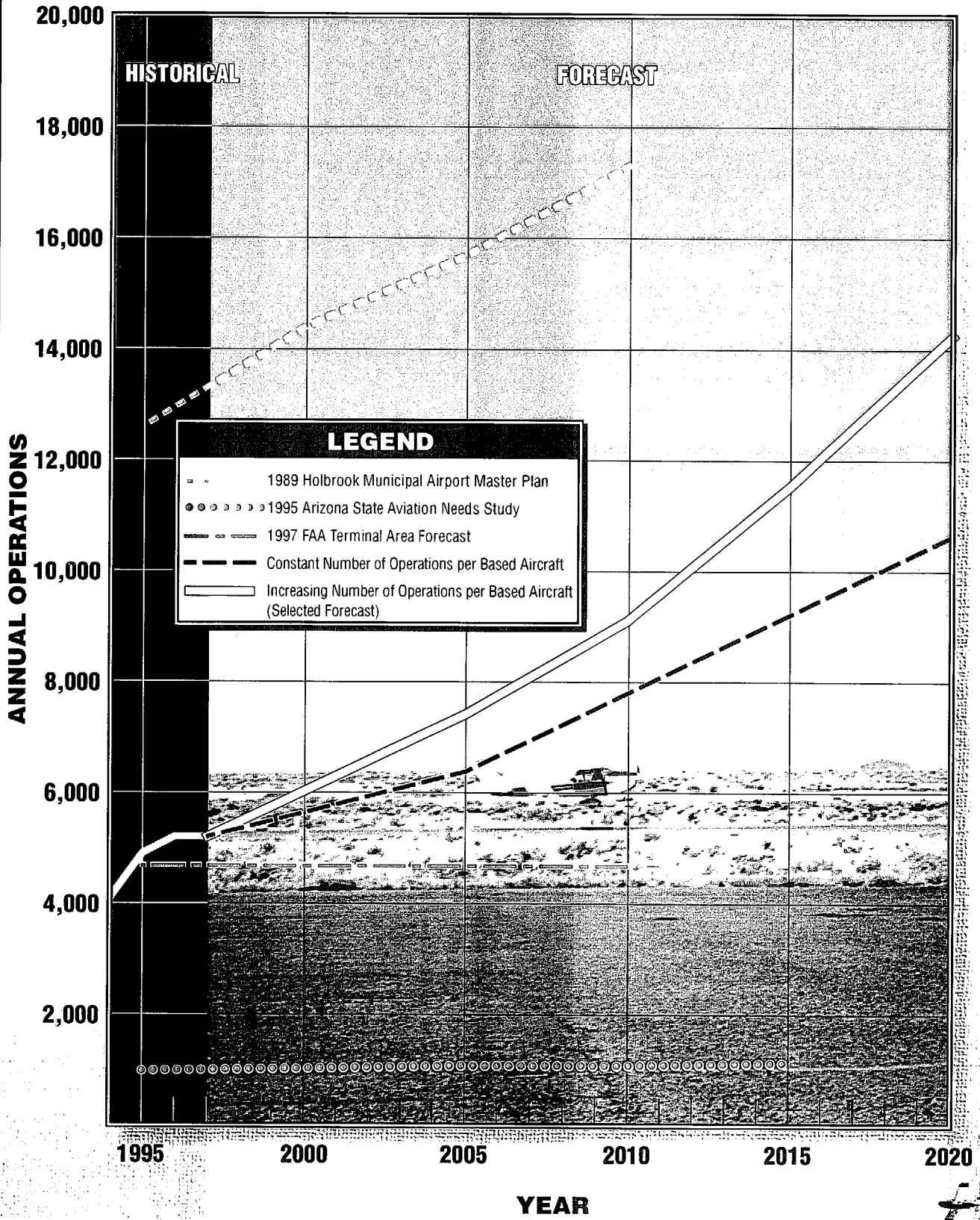
average annual rate of 1.4 percent per year. If this growth rate is applied to the operations per based aircraft ratio, it will increase the ratio to 470 by 2020. Applying this ratio to forecast based aircraft yields 14,100 annual operations by 2020.

TABLE 2G			
Historical Annual Operations and Operations Per Based Aircraft			
Year	Based Aircraft	Total Annual Operations (est.)	Operations Per Based Aircraft
<i>Historical</i>			
1994	19	4,100	215
1995	22	4,900	222
1996	17	5,200	305
1997	15	5,200	346
<i>Forecasts</i>			
<i>Constant Number of Operations per Based Aircraft</i>			
2005	18	6,300	350
2010	22	7,700	350
2015	26	9,100	350
2020	30	10,500	350
<i>Increasing Number of Operations per Based Aircraft</i>			
2005	18	6,800	380
2010	22	9,000	410
2015	26	11,400	440
2020	30	14,100	470

Previous forecasts have been examined for comparative purposes and are summarized in **Table 2H** and on **Exhibit 2C**. The 1997 TAF used 1996 operational estimates and projected annual operations to remain static at 4,650 through 2010. The 1995 SANS used 1993 base year data and projected annual operations growing at an average annual rate of 0.4 percent through 2015. The previous master plan projected annual operations

growing at an average annual rate of 2.2 percent through 2010.

The FAA projects an increase in aircraft utilization and the number of general aviation hours flown. This projected trend, along with the recent local trend showing an increase in operations, (even though based aircraft totals have declined) supports future growth in annual operations at Holbrook Municipal Airport. Considering these



factors, the increasing percentage of operations per based aircraft projection has been selected as the selected plan-

ning forecast as this is most indicative of future growth.

TABLE 2H
Annual Operations Forecast Summary

	2005	2010	2015	2020
Constant number of operations per based aircraft	6,300	7,700	9,100	10,500
Increasing number of operations per based aircraft	6,800	9,000	11,400	14,100
<i>1997 FAA Terminal Area Forecast</i>	4,650	4,650	N/A	N/A
<i>1995 Arizona State Aviation Needs Study</i>	1,070	1,070	1,119	N/A
<i>1989 Holbrook Municipal Airport Master Plan</i>	15,700	17,300	N/A	N/A

As mentioned previously, itinerant operations account for a larger portion of total annual operations than local operations. As observed by airport personnel and recorded on the FAA 5010-1 Airport Master Record Form, itinerant operations account for approximately 75 percent of total annual operations. Itinerant and local operations were estimated by applying this percentage to forecast annual operations and are summarized in **Table 2M** at the end of the chapter.

PEAKING CHARACTERISTICS

Many airport facility needs are related to the levels of activity during peak periods. The periods used in developing facility requirements for this study are as follows:

- **Peak Month** - The calendar month when peak aircraft operations occur.

- **Design Day** - The average day in the peak month. This indicator is easily derived by dividing the peak month operations by the number of days in the month.
- **Busy Day** - The busy day of a typical week in the peak month.
- **Design Hour** - The peak hour within the design day.

Without an airport traffic control tower, adequate operational information is not available to directly determine peak operational activity at the airport. Therefore, peak period forecasts have been determined according to trends experienced at similar airports and by examining the activity logs maintained by Triple A Aviation.

Typically, the peak month for activity at general aviation airports approximates 10 to 12 percent of the airport's annual

operations. According to the activity logs maintained by Triple A Aviation, the peak month has represented approximately 9.5 percent of total recorded operations. Peak month activity has been projected by applying this percentage to forecast annual operations as the percentage correlates with typical peak month activity.

Typically, busy day forecasts are estimated at 25 to 30 percent above the average day in the peak month. According to Triple A Aviation activity logs, busy day activity was 37 percent greater than average day operations.

While slightly higher than typical busy day figures, the projection of busy day activity was prepared by applying this percentage to forecast average (design) day operations as this approximates observed activity at Holbrook Municipal Airport.

The peak hour at airports typically represents 13 to 18 percent of busy day operations. At Holbrook Municipal Airport, the peak hour represented 13 percent of busy day operations recorded by Triple A Aviation. Peak hour operations were calculated by applying this percentage to busy day projections.

TABLE 2J
Forecasts of Peak Activity

	1997 (est.)	2005	2010	2015	2020
Annual Operations	5,200	6,900	9,000	11,400	14,100
Peak Month	494	655	855	1,083	1,339
Design Day	16	22	29	36	45
Busy Day	22	30	39	49	61
Peak Hour	3	4	5	6	8

COMMERCIAL AIR SERVICE POTENTIAL

Holbrook Municipal Airport has never been served by scheduled airline service. The extended drive times to airports with commercial air service (Flagstaff, Phoenix, Albuquerque), and the growing regional population and economy have the potential to attract air service. Considering the proximity of Holbrook to Phoenix and Albuquerque, any potential airline services would likely be commuter/regional type

airlines serving these commercial service airports.

An airline's decision to enter a market is purely a business decision based on the potential passenger market. Without a history of air service at Holbrook Municipal Airport it is difficult to estimate the local air passenger market. However, by examining similar airports and neighboring communities with existing scheduled airline service, it may provide an indication of the potential passenger market.

Communities near Holbrook which have had, or currently have, scheduled air service include Flagstaff, Prescott, and Show Low. (Note: air service to Show Low was discontinued in 1997). **Table 2K** compares local population in each community to the number of annual enplanements (a person boarding a scheduled airline flight) at each airport in 1995, 1996, and 1997 to derive a ratio of enplanements to 1,000 residents.

As shown in the table, the number of enplanements per 1,000 residents in Flagstaff grew from 716 in 1995 to 766 in 1997 as enplanements grew annually at the airport. For Prescott, the number of enplanements per 1,000 residents has declined as annual enplanements have declined (due to reductions in daily flights) while the local population has grown. For Show Low, the number of enplanements per 1,000 residents declined from 1995 to 1996 as population growth outpaced enplanement growth.

Prescott is included in the Federal Essential Air Service (EAS) program. Under this program, a subsidy is paid to the airline serving Prescott to guarantee regular service and reduce ticket prices. Considering the proximity of Prescott to Phoenix (less than 90 minutes north), the EAS subsidy likely increases the number of annual airline enplanements by ensuring regular air service. The number of enplanements per 1,000 residents in Prescott is lower in comparison to Show Low and Flagstaff since a large number of airline passengers in Prescott drive to Phoenix instead of using the airport in Prescott.

For Flagstaff and Show Low the number of enplanements per 1,000 residents is higher, in part, due to the extended drive times from these communities to Phoenix.

The ratio of enplanements per 1,000 residents in Holbrook is likely to be closer to the ratio experienced in Show Low since these communities have similar-sized populations and drive times to Phoenix. Assuming a ratio of 500 enplanements to 1,000 residents equates to an existing air passenger market of approximately 2,800 annual passengers in Holbrook. Applying this ratio to forecast population provides an indication of the potential air passenger market in Holbrook through 2020. The potential air passengers for Holbrook are summarized in **Table 2L**.

The most important factors in creating and sustaining scheduled air service are the frequency of service and air fare prices. Competitive air fares would attract travelers who might otherwise choose to drive to regional airports for frequency of service and efficiency.

The population of the City of Holbrook and the proximity of the City to other air carrier airports are viewed as primary factors limiting the potential for scheduled air service. Should the community be able to attract scheduled air service, it is likely that a large number of potential air passengers would still choose to drive to Phoenix and Albuquerque rather than flying directly from Holbrook Municipal Airport, which can offer jet service, lower fares, and greater frequency of service.

TABLE 2K**Enplanements per 1,000 Residents**

City	Year	Enplanements	Population	Enplanements per 1,000 Residents
Flagstaff	1995	37,769	52,745	716
	1996	43,294	55,885	775
	1997	44,565	58,145	766
Prescott	1995	11,358	30,270	375
	1996	10,734	31,275	343
	1997	8,634	33,695	256
Show Low	1995	3,151	5,830	540
	1996	3,525	7,230	488
	1997	None	7,480	N/A

The Arizona Department of Transportation, Aeronautics Division, prepared a rural air service study for the entire state of Arizona in 1999. The study considered a combined Winslow-Holbrook market for air service. This study concluded that the combined Winslow-Holbrook market could not profitably support commuter air service to Phoenix using a typical commuter aircraft such as the Beechcraft 1900 19-passenger seat aircraft. Instead, the study concluded that the combined Winslow-Holbrook market could only support one flight six days per week in a nine-passenger King Air. The study noted that the availability of air service in Flagstaff and Phoenix erodes the potential air passenger market for Winslow-Holbrook. Considering the

limited potential to support a viable commuter airline, the study concluded that commercial airline service does not appear economically viable for the Winslow-Holbrook market.

Attracting scheduled air service to Holbrook would require a considerable commitment by the City of Holbrook. Depending on the type of air service, the airport might need to pursue FAR Part 139 certification from the FAA (which would require Airport Rescue and Firefighting personnel) and a larger apron, dedicated terminal facility, and additional auto parking. In addition, the local community would likely need to provide marketing and/or subsidies to attract scheduled air service.

TABLE 2L**Potential Air Passengers
Holbrook Municipal Airport**

Year	Forecast Population	Enplanements Per 1,000 Residents	Potential Air Passengers
2005	5,895	500	2,900
2010	6,066	500	3,000
2015	6,194	500	3,100
2020	6,354	500	3,200

SUMMARY

This chapter has provided forecasts for each sector of aviation demand anticipated over the planning period. While the airport has experienced a slight decline in total based aircraft,

annual operations have grown as itinerant activity has increased. Long-term aviation growth at the airport will be influenced by a growing local population base and economy. **Table 2M** presents a summary of the aviation forecasts developed for the airport.

TABLE 2M
Aviation Forecast Summary
Holbrook Municipal Airport

	Forecasts				
	1998	2005	2010	2015	2020
Annual Operations					
Itinerant	3,900	5,100	6,800	8,600	10,600
Local	<u>1,300</u>	<u>1,700</u>	<u>2,200</u>	<u>2,800</u>	<u>3,500</u>
Total	5,200 ¹	6,800	9,000	11,400	14,100
Based Aircraft	14	18	22	26	30
¹ Estimated.					

These forecasts are essential to the effective analysis of future facility requirements. The next step in this study is to assess the capacity of exist-

ing facilities to accommodate forecast demand and determine which facilities will need to be improved to meet these demands.